

Oregon Department of Transportation

Guidelines for the Operation of Variable Message Signs on State Highways

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**OREGON DEPARTMENT of TRANSPORTATION
HIGHWAY DIVISION
TRAFFIC MANAGEMENT SECTION**

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Under Oregon Revised Statute 810.200, **Uniform standards for traffic control devices; uniform system of marking and signing highways**, and letters of authority from the Oregon Transportation Commission, the State Traffic Engineer is responsible for exercising authority with respect to the use of traffic control devices. Since variable message signs are traffic control devices, their operation is under the authority of the State Traffic Engineer.

The *Guidelines for the Operation of Variable Message Signs on State Highways* were developed by the Traffic Management Section and initially approved by the Oregon Traffic Control Devices Committee in 1995. The *Guidelines* were updated in January 2000 and supplements on portable variable message signs and sample messages were included. In 2002 sections on siting considerations and the approval process for permanent signs and clarifies guidance given on the selection of messages and message display. This revision adds information on displaying messages related to icy conditions and a supplement on the use of variable message signs for the Amber Alert System. These *Guidelines* are consistent with the *Manual on Uniform Traffic Control Devices (MUTCD 2003)*.

Approved by the State Traffic Engineer,
in consultation with the Oregon Traffic Control Devices Committee

(original signed by)

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Date: May 14, 2004

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Guidelines for the Operation of
Variable Message Signs on State Highways**

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I. Definition of VMS

A variable message sign (VMS) is a traffic control device whose message can be changed manually, electrically, mechanically, or electromechanically to provide motorists with information about traffic congestion, traffic crashes, maintenance operations, adverse weather conditions, roadway conditions, organized events, or other highway features (e.g., drawbridges, toll booths, weigh stations, etc.). A variable message sign may be referred to as a changeable message sign (CMS) or a dynamic message sign (DMS) in some publications. Speed radar boards are not addressed in these *Guidelines*.

II. Authority

Under Oregon Revised Statute 810.200, **Uniform standards for traffic control devices; uniform system of marking and signing highways**, and letters of authority from the Oregon Transportation Commission, the State Traffic Engineer is responsible for exercising authority with respect to the use of traffic control devices. Since VMSs are traffic control devices, their operation is under the authority of the State Traffic Engineer. These *Guidelines*, which clarify the use and operation of variable message signs on state highways in Oregon, are consistent with the *Manual on Uniform Traffic Control Devices (MUTCD 2003)*.

III. VMS Types and Design Considerations

Three types of VMS are in use in Oregon.

- A. Type 1 signs are permanent signs with three lines of 18 characters each. They are typically used on interstates and multilane roads and are normally mounted on sign bridges. Other support structures such as cantilever or butterfly may be used depending on site conditions. Signs should be legible for a minimum of 275 m (900 ft), but siting must consider other factors. Signs are normally mounted 5.1 m (17 ft) above the road, however should be mounted higher on an uphill grade.
- B. Type 2 signs are permanent signs with three lines of 12 characters each. They are typically used on two-lane roads and are normally mounted on butterfly supports. Signs should be legible for a minimum of 200 m (650 ft), but siting must consider other factors. Current ODOT design practice is that signs are mounted a minimum of 3.6 m (12 ft) above the road.
- C. Portable VMSs are variable message signs with three lines of eight characters each that can be moved to a location as required. Signs should be visible from 800 m (½ mile) under day and night conditions and should be legible for a minimum of 200 m (650 ft). The mounting of a portable VMS shall be such that the bottom of the message sign panel is a minimum of 2.15 m (7 ft) above the

roadway when the sign is in the operating mode. In moving operations, portable signs, which may have two lines of characters, may be mounted on a truck. Portable signs should not be installed in a permanent fashion. (For guidance on the use of portable variable message signs refer to *Supplement B, Use of Portable Variable Message Signs*, and for equipment specifications refer to Oregon Department of Transportation, *Standard Specifications for Highway Construction*, Section 00225.16 (b).)

Contact the ITS Unit, Traffic Management Section, ODOT for additional information on types of signs, design specifications, and mounting considerations.

IV. VMS Siting Considerations

Consider the following factors when siting a permanent VMS.

- A. Choose a site upstream from major decision points (e.g., ramps and freeway-to-freeway interchanges) that will allow drivers to take an alternate route. This is typically 2.4 to 4.8 km (1½ to 3 miles) in advance of a freeway-to-freeway interchange, though will frequently be less in urban areas where interchanges are closely spaced. The driver must have time to read the message, understand it, and take whatever action is required in a safe, comfortable manner before reaching the decision point.
- B. Locate the VMS upstream of bottlenecks, high crash areas, and/or major special event facilities (stadiums, convention centers, etc.).
- C. Locate the VMS along a tangent section at least as long as the minimum legibility distance specified above.
- D. Locate the VMS at least 305 m (1000 ft) from advance guide signs. This distance should be greater if there are more than two travel lanes in the direction of the sign.
- E. Avoid visual clutter when locating the VMS. It may be necessary to relocate existing signs.
- F. The site should be accessible by maintenance vehicles. A maintenance parking area or pullout should be provided.
- G. If the sign is located in the clear zone, it should be protected by guardrail or safety barrier.
- H. Distance to power and communications utilities can limit siting options.

V. VMS Approval Process

The State Traffic Engineer must approve all proposed permanent VMS installations prior to inclusion in the *Statewide Transportation Improvement Program (STIP)*.

The Region Traffic Manager, working with Project Teams and the ITS Unit, should prepare a request for approval of a new VMS and submit it to the State Traffic Engineer. The request should include specific information regarding purpose of sign, proposed type of sign and support, approximate location, and operational responsibilities. If an areawide transportation management study has been completed that includes the proposed VMS, a copy should be included with the request.

VI. Conditions Warranting Message Display

The primary purpose of a VMS is to provide information for motorists to make rapid decisions in response to roadway, traffic, or adverse weather conditions. VMS use should enhance ODOT's first priority: public safety. VMS messages should normally be displayed only when some response or decision by motorists is required. The following will typically determine the relative priority of displayed messages:

- A. Drawbridge operations, road or ramp closures, and emergency situations;
- B. Incident or crash;
- C. Construction or maintenance operations;
- D. Adverse weather or environmental conditions;
- E. Amber Alert message (see Supplement D: Amber Alert System);
- F. Traffic operations information associated with special events such as car shows or sports events;
- G. Travel time information;
- H. Special public safety messages approved by the State Traffic Engineer;
- I. Travel-related information, approved by the State Traffic Engineer, directed at individual vehicles; or
- J. Public Service Announcements approved by the State Traffic Engineer.

Changing needs, with respect to daily and seasonal occurrences, may alter the relative priority for displaying messages.

VII. Operation

A. Permanent Variable Message Signs

The operation of permanent variable message signs shall be in response to the conditions outlined in Section VI, Conditions Warranting Message Display.

B. Portable Variable Message Signs (including truck-mounted signs)

The operation of portable variable message signs (PVMSs) will be according to the manufacturer's instructions and within the requirements of *Supplement B, Use of Portable Variable Message Signs*. Use of a PVMS to display public service messages is not permitted; use of a PVMS to display travel time information is discouraged.

C. Highway Advisory Radio

All permanent and portable variable message signs should be operated in a way that is consistent with the operation of Highway Advisory Radio (HAR) operating in the area.

VIII. Message Selection

Region Traffic Managers have the responsibility to approve messages to be displayed on all variable message signs in their region. Traffic Management Section staff is available to assist the regions with message development.

A. Routine Messages

1. All routine messages to be displayed on a permanent VMS should be composed by referring to *Supplement A, Sample Messages for Display on Variable Message Signs*.
2. All routine messages to be displayed on a PVMS, including a PVMS used to provide construction information, should be composed by referring to *Supplement C, Sample Messages for Display on Portable Variable Message Signs*.

B. Additional Messages

If unusual circumstances require composing additional messages, the following factors should be considered:

1. All messages must relate to the reasons listed in Section VI, Conditions Warranting Message Display.

2. An advisory message should consist of a problem statement (e.g., incident, construction) and an action statement (e.g., exit, prepare to stop) and may also include an attention statement if the message is being directed at a segment of drivers (e.g., through traffic, all trucks).
3. Unnecessary words (e.g., a, an, the) should be eliminated and common abbreviations should be used without a period unless the intent of the message is unclear.
4. Messages should be displayed in compatible, meaningful units of information referred to as “chunks”.
5. The entire message should be readable at least twice by drivers traveling at the posted speed. There is evidence that an eight-word message excluding prepositions is approaching the processing limits of drivers traveling at high speeds.

See Section IX. Displaying, Altering, and Removing Messages.

C. Determination of Speeds, Distances, and Times Used Within the Text

1. Speed

Unless specifically approved by the Region Traffic Manager, avoid using numeric speeds in the message. Speeds on a VMS are advisory or warning rather than regulatory. The use of messages like “SLOW,” “REDUCE SPEED,” etc., are preferable to numeric speeds because they tell an action that the driver should take.

2. Distance

- a) Distances may incorporate the fractions $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ mile. Distances less than $\frac{1}{4}$ mile should be shown in feet (rounded to the nearest 100 feet).
- b) Reference to an exit number or “NEXT EXIT,” “2ND EXIT,” etc. may be preferable to actual distances. Local names or landmarks should be avoided as much as possible.

3. Time

Time displayed in VMS text shall relate to the standard 12-hour format using “AM” and “PM” designation, and express local time. The abbreviations “MIN” and “HR” should be used.

IX. Displaying, Altering, and Removing Messages

- A. A message should only be displayed when a response is needed. At a minimum, drivers need to know what they should do and a good reason for doing it. (See Section X.A. regarding Public Service Announcements.)
- B. All messages displayed on a permanent VMS shall conform to the priority listing given in Section VI, Conditions Warranting Message Display.
- C. Messages should be centered within each line of legend.
- D. Techniques of message display such as fading, exploding, dissolving, or scrolling shall not be used. The text of messages shall not flash. Arrows can be flashed.
- E. Single panel messages should be continuously displayed. Alternatively displaying a single panel message and a blank panel implies to the observer that new information may be displayed.
- F. Each message panel should be displayed so that it can be read at least twice by drivers traveling at the posted speed.
- G. On highways where the prevailing speed is greater than 55 mph, messages shall not be separated into more than two, sequentially displayed phrase panels. At lower speeds, messages shall not be separated into more than three, sequentially displayed panels.
- H. If more than one variable message sign is visible to road users only one sign shall display a sequential message at any given time.
- I. Messages that could cause traffic pattern changes that could adversely impact a facility operated or maintained by another jurisdiction should be avoided. Contact the responsible person of the affected jurisdiction prior to displaying such a message.
- J. Messages that could impact traffic at another permanent ODOT VMS location should not be displayed or removed without first contacting the VMS operator at the affected location.
- K. Restoration of earlier messages may be required when a current message display is ended.
- L. Prior to display, message spelling, layout and intent should be verified.
- M. Messages displayed on a permanent VMS should be verified either by direct observation by field personnel, through the use of CCTV, or other means.

X. Restrictions on VMS Usage

A. Public Service Announcements

A Public Service Announcement (PSA), as it pertains to display on a VMS on the public roadway, is a brief message that does not require an immediate response but encourages the driver to change a future behavior. PSAs related to air quality alerts and transportation safety are permitted on permanent signs as outlined below. PSAs shall not be displayed on a PVMS. When displaying a PSA on a permanent VMS the following factors shall be considered:

1. A PSA shall have the lowest message priority and shall be displayed only at the discretion of the State Traffic Engineer.
2. A PSA shall be limited to a single panel containing no more than eight words (about four to eight characters per word) excluding prepositions. Strobe or flashing lights shall not be used in conjunction with a PSA.
3. The State Traffic Engineer shall pre-approve the text of all PSAs.
4. A PSA should not be displayed within one hour following the termination of any other message.
5. PSAs related to transportation safety issues shall be displayed only as supplementary to local or statewide transportation safety media campaigns on the same topic. The display of a PSA during peak traffic periods should be avoided. The total duration of the display should not exceed five hours per day or more than five days per month at any permanent VMS location.
6. Messages related to air quality or alternative transportation options may be displayed during the 24-hour period preceding an air quality alert day as determined by the State Traffic Engineer or designated representative in cooperation with the Department of Environmental Quality (DEQ). The duration of the message display is not subject to the restriction of paragraph 5 above.

B. Advertising Messages

Advertising messages, including tourist information, shall not be displayed on any permanent or portable VMS.

C. Use for Special Events

If a special event is likely to impact traffic operations, a message may be displayed on a permanent or portable VMS to inform drivers about exit and parking information. Messages should be approved by the Region Traffic

Manager and should follow the examples given in Supplements A and C. If an attraction qualifies as a “destination” a message may be appropriate but should avoid direct mention of a specific private establishment or event.

The ODOT Region Traffic Manager or District Manager may request the event organizer to submit a traffic control plan for managing additional traffic volumes likely to occur before and after the scheduled event. (Note Division 56 of the Oregon Administrative Rules addresses special event permits on state highway rights-of-way. OAR 734-056-0030(3)(d) requires an applicant to submit a traffic control plan as part of the permit process.)

D. Messages Relating to Changes in Public Law

For the purposes of this section, information relating to changes in public law or traffic control, which is determined by the District Manager or Project Manager to be necessary for the safety of the traveling public, is not considered to be a PSA. Such messages should be limited, if possible, to a single panel.

E. Messages Relating to Travel Time Information

Messages relating to travel time information may be displayed at the discretion of the Region Traffic Manager. Use of a PVMS to display travel time information is discouraged. When displaying travel time information the following shall be considered:

1. There shall be an established program for disseminating travel time information on the corridor or route on which the sign is situated.
2. There shall be a means for determining travel time to ensure that the information is accurate and real time.
3. The travel time message shall be preemptable by a message of a higher priority.
4. Strobe or flashing lights shall not be used in conjunction with travel time information.
5. Travel time information displayed should not be for more than two highway sections/corridors. Normally the highways should be alternate route choices to each other and should be routes that are in close proximity to the sign.

See *Supplement A, Sample Messages for Display on Permanent Variable Message Signs*, for the format to be used to display travel time information.

F. Messages Directed at an Individual Vehicle

With approval of the State Traffic Engineer, a permanent VMS may be used to communicate directly with an individual vehicle about travel related matters. This use will only be permitted if such messages can immediately be overridden with higher priority messages.

G. Test Messages

Test messages on a permanent VMS should be clearly identified and displayed, if possible, only during non-peak traffic periods. (See *Supplement A, Sample Messages for Display on Permanent Variable Message Signs*, for suggested test messages.) Test messages on a PVMS should not be displayed to traffic.

H. Use for Advance Notification

Messages should not project anticipated road conditions due to expected extreme weather more than 24 hours in advance. Information on extended road or lane closures for construction or maintenance activities should be displayed prior to, but generally no more than, one week in advance of the closure.

I. Special Public Safety Messages

With the approval of the State Traffic Engineer, special public safety messages (e.g. extreme fire danger) may be displayed on a VMS. Such uses will only be permitted if the message can be immediately overridden with a higher priority message.

J. Displaying Messages Related to Icy Conditions

It is not possible to display messages regarding icy conditions everywhere or every time they occur. Messages related to icy conditions should only be posted if conditions are unusual and not normally experienced on that section of roadway. Black ice or ice that develops rapidly are examples of unusual conditions. District maintenance personnel are in the best position to determine if icy conditions at a particular location are unusual. Previous ice-related incidents or crashes at the location could provide additional support for providing motorists information about the current situation. If the icy conditions are unusual, an available VMS or PVMS can be used to display an ice-related message. An acceptable message is "WATCH FOR ICE" which may be followed by the additional message "NEXT xx MILES".

The message should be removed when the conditions no longer require its display.

XI. Permanent Variable Message Sign Computer Use

A master computer should be dedicated to the control of permanent VMS installations that require the continuous operation of VMS software. In-house use of the master computer for word processing, spreadsheet, or comparable function should not be allowed unless the computer is “multi-tasked”.

XII. Record Keeping

Computer files of messages, display times, the operator who posted the message, and other records referencing permanent VMS operations should be stored on the VMS computers by the operators at each location. This data should be compiled annually, or more often if necessary, and retained by the Region or District responsible for the sign.

Supplement A: Sample Messages for Display on Permanent Variable Message Signs

Message Category	Panel A	Panel B	Required#
Roadway Conditions/ Closures	FREEWAY CLOSED AT EXIT nn		
	FREEWAY CLOSED xx MILES		
	FREEWAY BLOCKED	KEEP RIGHT PREPARE TO STOP	
	BRIDGE CLOSED xx MILES	ALL TRAFFIC USE I-405 LEFT LANES	
Adverse Weather Conditions	SNOW ZONE	CARRY CHAINS OR TRACTION TIRES	X
	SNOW ZONE	CHAINS REQUIRED** ON VEHICLES TOWING OR OVER 10000 GVW	X
	SNOW ZONE CHAINS REQUIRED	TRACTION TIRES ALLOWED ON VEH UNDER 10000 GVW	X
	DENSE FOG AHEAD	LOW VISIBILITY	
	EXTREME HAZARD FREEZING FOG		
	WATCH FOR ICE	NEXT XX MILES	
Traffic Collisions	WRECK AHEAD	USE RIGHT LANE*	
	WRECK AHEAD	PREPARE TO STOP	

Both panels are required for compliance with Oregon administrative rules or guidelines.

* Can substitute "LEFT" or "CENTER" for "RIGHT"; can substitute "LANES" for "LANE" if there are at least three travel lanes in the relevant direction of travel.

**Can insert a third panel: "xx MILES AHEAD"

Message Category	Panel A	Panel B	Required
Maintenance	WRECK xx MILES AHEAD	LEFT LANE CLOSED	
	WRECK xx MILES AHEAD	I-5 SEATTLE USE I-405 LEFT LANES	
	WRECK xx MILES AHEAD	CITY CENTER EXIT LLOYD BLVD	
	WRECK xx MILES AHEAD	FWY CLOSED AT NE 43RD AVE	
	WRECK xx MILES AHEAD	ALL TRAFFIC USE I-405 RIGHT LANES	
	CONSTRUCTION xx MILES AHEAD	WATCH LANE RESTRICTIONS	
	SWEEPER AHEAD	USE RIGHT LANE	
Event-related	ROAD WORK xx MILES AHEAD	USE RIGHT LANE	
	SHOULDER WORK EVENT PARKING EXIT nn	USE RIGHT LANE	
	EVENT PARKING EXIT LLOYD BLVD		
	EVENT PARKING FOLLOW I-5 SEATTLE		
EVENT PARKING USE I-5 RIGHT LANES	THRU TRAFFIC USE I-405 LEFT LANES		

Message Category	Panel A	Panel B	Required
Signs intended for specific groups of road users	EVENT PARKING FOLLOW I-5 EXIT nn EXPO CNTR PARKING EXIT 306B RIGHT LANE ONLY TRUCKS TRUCKS MOBILE HOMES nn ROAD CLOSED MOBILE HOMES nn EXIT CLOSED OVERSIZED VEH USE EXIT nn	THRU TRAFFIC PORTLAND-SALEM LEFT LANE ESCAPE RAMP UNDER REPAIR SECOND ESCAPE RAMP CLOSED HIGH WINDS ROAD CONSTRUCTION I-84 CLOSED TO OVERSIZED VEH	
Travel Time Information	*TRAVEL TIME INFO* VLY JCT- LINCOLN CTY xx MIN		
Test Messages*	SIGN UNDER SYSTEMS TEST ODOT TEST OREGON DEPARTMENT OF TRANSPORTATION SIGN UNDER TEST	ODOT TEST SYSTEMS TEST TEST TEST TEST	

* Other messages or displays that allow observation of individual pixel operation may be utilized for diagnostic purposes. If unusual circumstances require testing of individual characters, testing should be done during off-peak periods. Advance signing should be utilized.

Supplement B

Use of Portable Variable Message Signs

This supplement is based on the Guidelines for the Operation of Variable Message Signs on State Highways and on the Manual on Uniform Traffic Control Devices (MUTCD 2000). It is available as a separate pamphlet as well.

I. Definitions

A variable message sign (VMS) is a traffic control device whose message can be changed manually, electrically, mechanically, or electromechanically to provide motorists with information about traffic congestion, traffic crashes, maintenance operations, adverse weather conditions, organized events, or other highway conditions or features. A variable message sign may be referred to as a changeable message sign (CMS) or a dynamic message sign (DMS) in some publications.

A portable variable message sign (PVMS) is a variable message sign that can be moved to a location as required. Signs are normally placed on the right-of-way or, if used in moving operations, are mounted on a truck.

All PVMSs used on the state highway system shall be listed on ODOT's *Qualified Products List (QPL)*.

II. Conditions of Use

The purpose of a PVMS is to provide information for motorists to make rapid decisions in response to traffic or adverse weather conditions. PVMS use should enhance ODOT's first priority: public safety.

PVMSs are used for temporary traffic control and should not be used as a substitute for conventional signs and pavement markings. PVMS messages should be displayed only when some response or decision by motorists is required. The following will determine the relative priority of displayed messages on PVMSs:

- A. Road and ramp closures and emergency situations;
- B. Incident or crash;
- C. Construction or maintenance operations;
- D. Adverse weather or environmental conditions;
- E. Traffic operations information associated with special events such as car shows or sports events;
- F. Travel time information; or
- G. Special public safety messages.

All PVMSs shall be operated under the authority of the Region Traffic Manager, the District Manager, or Construction Project Manager and in accordance with these *Guidelines*, the *MUTCD*, and the manufacturer's instructions.

Messages that could cause traffic pattern changes that could adversely impact a facility operated or maintained by another jurisdiction should be avoided. Contact the responsible person of the affected jurisdiction prior to displaying such a message.

III. Restrictions on PVMS Use

A. Public Service Announcements

A Public Service Announcement (PSA) shall not be displayed on a PVMS. A PSA, as it pertains to display on a VMS on the public roadway, is a brief message that does not require an immediate response but encourages the driver to change a future behavior that will contribute to transportation safety or air quality improvements.

B. Advertising Messages

Advertising messages, including tourist information, shall not be displayed on any PVMS.

C. Travel Time Information

Use of a PVMS to display travel time information is discouraged.

D. Use for Special Events

If a special event is likely to impact traffic operations, a message may be displayed on a PVMS to inform drivers about exit and parking information. The message should avoid direct mention of a specific private establishment or event. The PVMS should be displayed only during the time period that traffic operations will be impacted and should be removed promptly when traffic is operating normally.

E. Messages Relating to Changes in Public Law

For the purposes of this section, information relating to changes in public law or traffic control, which is determined by the District Manager or Construction Project Manager to be necessary for the safety of the traveling public, is not considered to be a PSA. Such messages should be limited, if possible, to a single panel. Use of a PVMS for such messages at freeway locations outside work zones should be avoided.

F. Test Messages

Test messages on a PVMS should not be displayed to traffic.

G. Default Messages

The default message for a PVMS is “blank”.

H. Use for Advance Notification

Messages should not project anticipated road conditions due to expected extreme weather more than 24 hours in advance. Information on extended road or lane closures for construction or maintenance activities should be displayed prior to, but generally no more than, one week in advance of the closure.

I. Highway Advisory Radio (HAR) Messages

Messages displayed on a PVMS should be complementary to messages aired on any Highway Advisory Radio (HAR) available in the area.

J. Special Public Safety Messages

With the approval of the State Traffic Engineer, special public safety messages may be displayed on a PVMS.

K. Displaying Messages Related to Icy Conditions

It is not possible to display messages regarding icy conditions everywhere or every time they occur. Messages related to icy conditions should only be posted if conditions are unusual and not normally experienced on that section of roadway. Black ice or ice that develops rapidly are examples of unusual conditions. District maintenance personnel are in the best position to determine if icy conditions at a particular location are unusual. Previous ice-related incidents or crashes at the location could provide additional support for providing motorists information about the current situation. If the icy conditions are unusual, an available PVMS can be used to display an ice-related message. An acceptable message is “WATCH FOR ICE” which may be followed by the additional message “NEXT xx MILES” on a second panel.

The PVMS should be removed or covered when the road conditions have improved.

IV. Placement of PVMSs on the Right-of-Way

A. A PVMS should be sited and aligned to optimize visibility and driver response.

B. A PVMS with displayed messages should be visible from 800 m (½ mile) under day and night conditions. Each sign should be legible for a minimum of 200 m (650 ft) from all lanes for which the message is intended.

C. A PVMS should be placed on the shoulder of the roadway. If practical, it can be placed further from the roadway beyond the clear zone. A PVMS should be delineated with retroreflective temporary traffic control devices or, when within the clear zone, shielded with a barrier or crash cushion.

- D. A PVMS shall be mounted so the bottom of the message sign panel is a minimum of 2.15 m (7 ft) above the roadway when it is in the operating mode.
- E. When not in use, a PVMS should be moved out of the highway clear zone as soon as possible. If not removed, the PVMS should be shielded or, if this is not feasible, delineated with retroreflective temporary traffic control devices.
- F. Refer to the ODOT publication, *Traffic Control on State Highways for Short Term Work Zones*, for guidance in placement of all signs used in work zones.
- G. If two PVMSs are needed, they should normally be placed on the same side of the roadway, separated according to guidance given in *Traffic Control on State Highways for Short Term Work Zones*.
- H. Use of cones or barriers should follow practices given in *Traffic Control on State Highways for Short Term Work Zones*.

V. Message Selection and Verification

A message should only be displayed if it meets the conditions in Section II, Conditions of Use.

A. Message Content

1. All routine messages to be displayed on a PVMS should be composed by referring to *Supplement C, Sample Messages for Display on Portable Variable Message Signs*.
2. Each Region Traffic Manager has the responsibility to approve non-routine or special messages to be displayed on PVMSs in his/her region. When composing a message, the following factors should be considered:
 - a. All messages must relate to the reasons listed in Section II, Conditions of Use.
 - b. An advisory message should consist of a problem statement (e.g., ROAD CLOSED, DENSE FOG) and an action statement (e.g., DETOUR, REDUCE SPEED) and may also include an attention statement if the message is being directed at a segment of drivers (e.g., THRU TRAFFIC, ALL TRUCKS).
 - c. Unnecessary words (e.g., a, an, the) should be eliminated and common abbreviations should be used without a period unless the intent of the message is unclear.
 - d. Messages should be centered within each line of legend.

- e. Arrows and chevrons may be used. Graphics shall not be used.
- f. Techniques of message display such as fading, exploding, dissolving, or scrolling shall not be used. The text of messages shall not flash. Arrows can be flashed.
- g. Messages should be displayed in compatible units of information referred to as “chunks”. For example:

Preferred:
 THRU TRAFFIC
 USE LEFT LANES

Avoid:
 THRU TRAFFIC USE
 LEFT LANES

- h. Single panel messages should be continuously displayed. Alternatively displaying a single panel message and a blank panel implies to the observer that new information may be displayed.
- i. Normally, no more than two panels should be used. When a message is longer than two panels, an additional sign should be used. If more than one PVMS is visible to road users, only one sign shall display a sequential message at any given time.
- j. The entire message cycle should be readable at least twice at the anticipated operating speed.
- k. Numeric speeds should be avoided. Use messages like “SLOW” or “REDUCE SPEED”.
- l. Distances may incorporate the fractions $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ mile. Distances less than $\frac{1}{4}$ mile should be shown in feet (rounded to the nearest 100 feet). It may be preferable to refer to an exit number or use “NEXT EXIT” or “2ND EXIT” rather than use actual distances. Avoid local names or landmarks if possible.
- m. Time display should relate to the standard 12-hour format using the “AM” and “PM” designation.

B. Message Entry and Verification

A PVMS may be programmed in the field or remotely. If the PVMS is programmed remotely, insure that a good communication link has been established and verify that the intended message is displayed.

C. Termination of Message

When the message is no longer needed, the PVMS should be blank and turned away from traffic. The PVMS should be moved out of the highway clear zone as soon as practical.

V. Record Keeping

Each District should maintain records on the use of all PVMSs. The record should include date and time of use, location, direction, the message displayed, the reason for use, and the operator who posted the message.

Supplement C

Sample Messages for Display on Portable Variable Message Signs

Most sign legends included in the ODOT document, *Sign Policy and Guidelines for the State Highway System*, may be used on a portable variable message sign (PVMS) when needed for traffic control purposes. Due to limitations in the number of characters, abbreviations may be required. Refer to the list below. Arrows and chevrons may be used. Graphics shall not be used. Messages may include distance information expressed in feet or miles.

In composing messages for use on PVMSs, consider the examples below. Keep in mind that drivers generally need to know what they should do and a good reason for doing it. Normally one panel will be used to give the reason and one panel will be used for the requested action. While normally one or two panels should be used on a PVMS, occasionally it may be necessary to use an additional panel to address a segment of drivers (e.g., TRUCKS, OVERSIZE VEHICLES). In no case should there be more than three panels.

Reason

nn ROAD
CLOSED

LEFT LANE
CLOSED

WET
PAINT

nn EXIT
CLOSED

NEXT EXT
CLOSED

WORKERS
AHEAD

BRIDGE
CLOSED

RAMP
CLOSED

WRECK
AHEAD

CONST

ROAD
CLOSED

DEBRIS
AHEAD

ROAD
WORK

DENSE
FOG

SNOW
PLOW
AHEAD

EVENT
PARKING

STALLED
VEHICLE
AHEAD

FREEWAY
CLOSED

INCIDENT
AHEAD

TOW
TRUCK
AHEAD

Action Requested

CAUTION	ONE-WAY TRAFFIC	SLOW DOWN
DETOUR	PASS TO RIGHT	STOP AHEAD
DO NOT PASS	PREPARE TO STOP	USE nn ROAD
EXPECT DELAYS	REDUCE SPEED	USE CAUTION
FORM ONE LANE	SLOW	
MOVE RIGHT		

Messages Regarding Use of Chains and Traction Tires

OAR 734-017-0025 specifies approved sign legends regarding use of chains or traction devices. Message 1 is an approved legend; messages 2 and 3 are not, but can be used to provide information to motorists when other options are not available.

Message 1	SNOW ZONE	CARRY CHAINS OR	TRACTION TIRES
Message 2	SNOW ZONE	CHAINS REQUIRED	UNDER 10K TRACTION TIRES OK
Message 3	SNOW ZONE	CHAINS REQUIRED	FOR VEHICLES OVER 10K

Acceptable Abbreviations

ACCS	Access	HWY	Highway
AHD	Ahead	I	Interstate
BLKD	Blocked	MI	Mile or Miles
CONST	Construction	MPH	Miles Per Hour
EBND	Eastbound	N,S,E,W	North, South, East, West
EXIT	Exit		
FRNTG ROAD	Frontage Road	NBND	Northbound

FWY
RD
RTE
SBND
SHLDR

Freeway
Road
Route
Southbound
Shoulder

PVMT
ST
TEMP RTE
WBND

Pavement
Street
Temporary Route
Westbound

Supplement D

Amber Alert System

The purpose of a Variable Message Sign (VMS) is to provide information for motorists to make rapid decisions in response to roadway, traffic, or adverse weather conditions.

This supplement to the *Guidelines for the Operation of Variable Message Signs on State Highways* addresses the use of Variable Message Signs (VMS) for public safety messages concerning the abduction of a child when that abduction has activated the Amber Alert System. Public safety messages approved by the State Traffic Engineer are allowed (Section VI.G.).

The Amber Plan, established in October 2002 by Executive Order No. 02-22, uses the Emergency Alert System, television, radio, and the state highway variable message system, to provide timely emergency information to the public regarding a child abduction.

The messages posted on a VMS are referred to as Amber Alert messages.

I. Operation

- A. An Amber Alert message shall only be posted when there is verification of a legitimate Amber Alert activation from the Oregon State Police (OSP) Northern Communications Center or the Washington County Consolidated Communications Agency (WCCCA) 911 Center.
- B. No Amber Alert message shall be displayed on an ODOT VMS at the request of any other law enforcement offices.
- C. When an Amber Alert is active, ODOT Transportation Operations Centers will activate all fixed VMSs unless otherwise directed in the Amber Alert activation notice. Activation of portable VMSs is at the discretion of the TOC shift supervisor.
- D. When a sign is needed to warn motorists of conditions on the highway needing their immediate attention, an Amber Alert message should not be displayed.
- E. The following uses will typically have higher priority than the display of an approved Amber Alert message (Section VI, Conditions Warranting Message Display):
 - 1. Drawbridge operation, road or ramp closure, and emergency situations;
 - 2. Incidents or crashes;
 - 3. Construction or maintenance operations; and
 - 4. Adverse weather or environmental conditions.

- F. Unless the Amber Alert is updated or reissued with additional information, the Amber Alert message should be displayed for no more than three hours or until the Amber Alert is officially called off, whichever occurs first.
- G. An Amber Alert message should be discontinued if there is a need to warn motorists of road conditions needing an immediate response.

II. Approved Amber Alert Messages

- A. One panel message for Type 1 sign:

**AMBER ALERT
TUNE RADIO
TO LOCAL NEWS**

- B. One panel message for Type 2 sign:

**AMBER ALERT
TUNE RADIO
LOCAL NEWS**

- C. Two panel message for Portable VMS:

Panel A: AMBER ALERT	Panel B: TUNE TO LOCAL RADIO
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III. Record Keeping

- A. Computer files of messages, display times, and the operator who posted the message should be maintained.
- B. Local procedures for documenting communications regarding the use of VMS for Amber Alert should be established and followed.